

Knox Housing Monitoring Program

Annual Report for 2020

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1. This document

This is the 13th annual Knox Housing Monitoring Program report. It presents measures of progress against the six objectives of the *Knox Housing Strategy 2015*.

2. A note on net vs. total dwelling change

Approved planning permits are used throughout this report as an indicator of what dwellings are likely¹ to be built, and where. Planning permits often allow for the demolition of an older dwelling or dwellings as well as the construction of a new dwelling or dwellings. Two different approaches for counting the number of dwellings approved in planning permits are used in this report:

- **Total dwellings** measures all new dwellings possible from approved planning permits, and does not account for demolitions. This measure is used to demonstrate how approved permits align with the objectives of the *Knox Housing Strategy 2015* as it provides the best information about the size and type of dwellings approved in 2020.
- **Net new dwellings** possible measures the increase in dwellings possible from approved planning permits, beyond what exists in Knox already. It subtracts demolitions from the total increase, resulting in a lower figure than total dwellings approved. The net dwellings measure is used to measure the growth in Knox's housing supply and show change over time, as it provides the best information about the overall availability of housing across the city.

For example, an approved planning permit to replace a single house with four new townhouses would be counted as four total new townhouses and an increase of three net new dwellings.

3. Policy context

Plan Melbourne 2017-2050 is the Victorian Government's strategy for supporting jobs, housing and transport, while building on Melbourne's distinctiveness, liveability and sustainability. The underlying goal of this policy is to direct new housing toward areas near existing services, jobs and public transport.

The *Knox Housing Strategy 2015* builds on *Plan Melbourne 2017-2050* by supporting a scaled approach to residential development to accommodate population growth and the community's changing housing needs. This scaled approach recognises that some parts of Knox will need to accommodate change, and in other areas change should be limited in order to protect and enhance Knox's green and leafy character and areas of environmental significance.

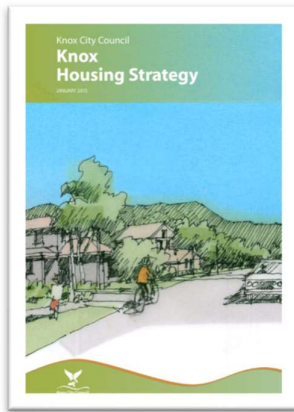
The *Knox Housing Strategy 2015* divides Knox into four housing areas (Map 1), each with different levels of change anticipated and different types of dwelling preferred:

- **Bush Suburban** and **Knox Neighbourhood** areas are expected to see less change, preserving areas of environmental significance (including native vegetation and wildlife habitat), landscape value and neighbourhood character.

¹ Approved planning permits are indicative of what may be built, not necessarily what will be built. Planning permits typically expire after two years, although extensions for an additional two years can be granted.

- **Local Living and Activity Areas** are expected to see more change, accommodating medium and higher density development to provide additional housing capacity and increased choice to serve the city’s changing needs.

The diagram below shows how the objectives of the *Knox Housing Strategy 2015* align with the strategies of the *Knox Community and Council Plan 2017-2021*.



Objective 1: A diversity of housing is provided in appropriate locations.



Strategy 2.1: Plan for a diversity of housing in appropriate locations.

Objective 2: Residential development better responds to the community's current and future needs, and allows people to age-in-place.



Strategy 2.3: Support the delivery of a range of housing that addresses housing and living affordability needs.

Objective 3: Energy, water, and waste efficient design are increased in residential dwellings.



Strategy 2.2: Encourage high-quality sustainable design.

Objective 4: Housing design is improved to better respond to neighbourhood identity and create a stronger sense of place.



Strategy 1.3: Ensure the Knox local character is protected and enhanced through the design and location of urban development and infrastructure.

Objective 5: Protect and enhance landscape and environmental values of natural areas of significance.



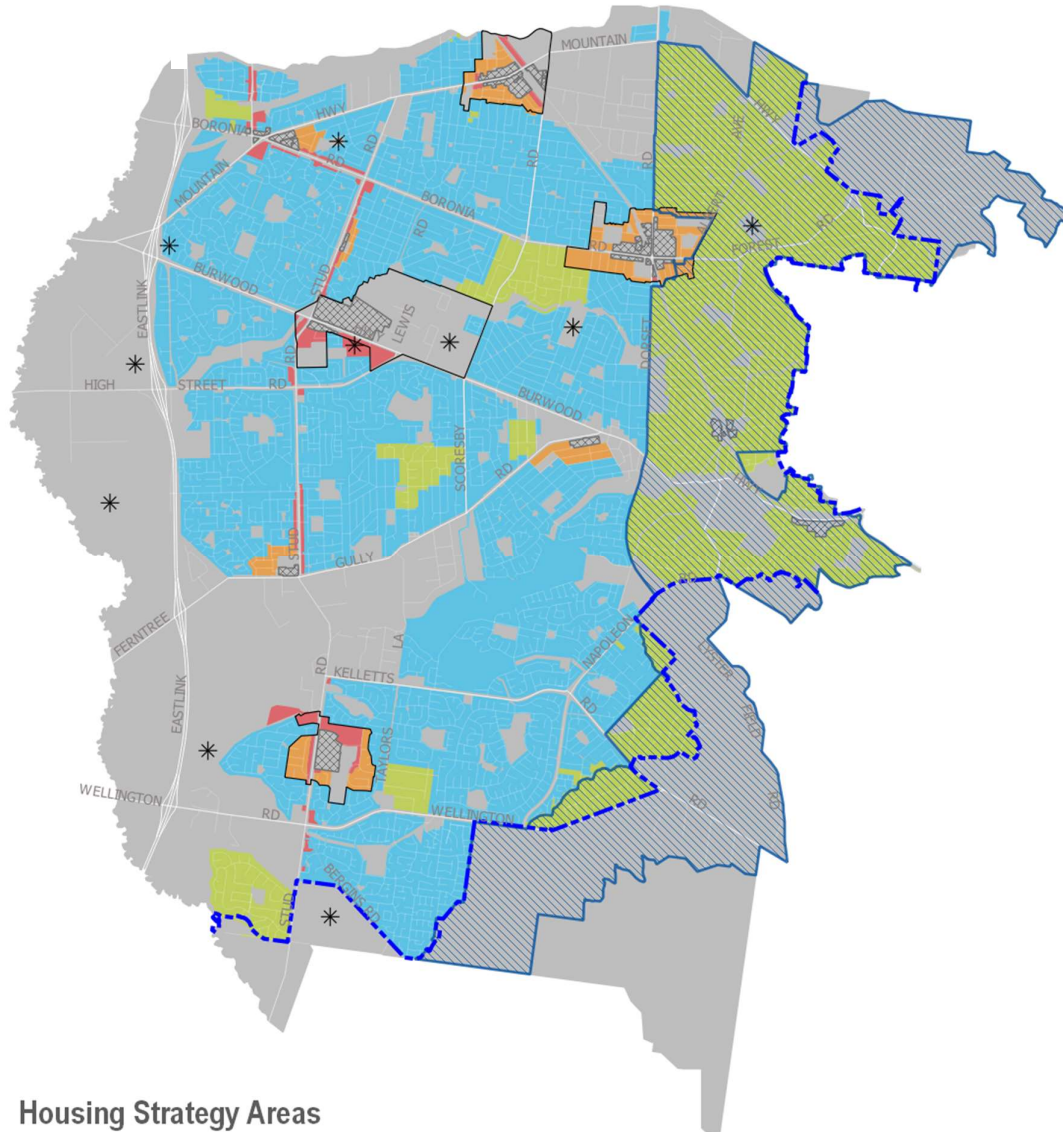
Strategy 1.2: Create a greener city with more large trees, indigenous flora and fauna.

Objective 6: Development responds to neighbourhoods in an integrated and balanced manner.



Strategy 1.3: Ensure the Knox local character is protected and enhanced through the design and location of urban development and infrastructure.

Map 1. Areas defined in the *Knox Housing Strategy 2015*



Housing Strategy Areas

- Bush Suburban
- Knox Neighbourhood
- Local Living
- Activity Area
- Activity Centre boundary
- Activity Areas (retail/commercial/residential)
- Dandenong Foothills Area (separate planning controls apply)
- * Strategic Sites for potential future housing
- Urban Growth Boundary

Note: Most of the Strategic Sites identified in the *Knox Housing Strategy 2015* have been, or are being developed for housing.

4. Overview: planning permits approved in 2020

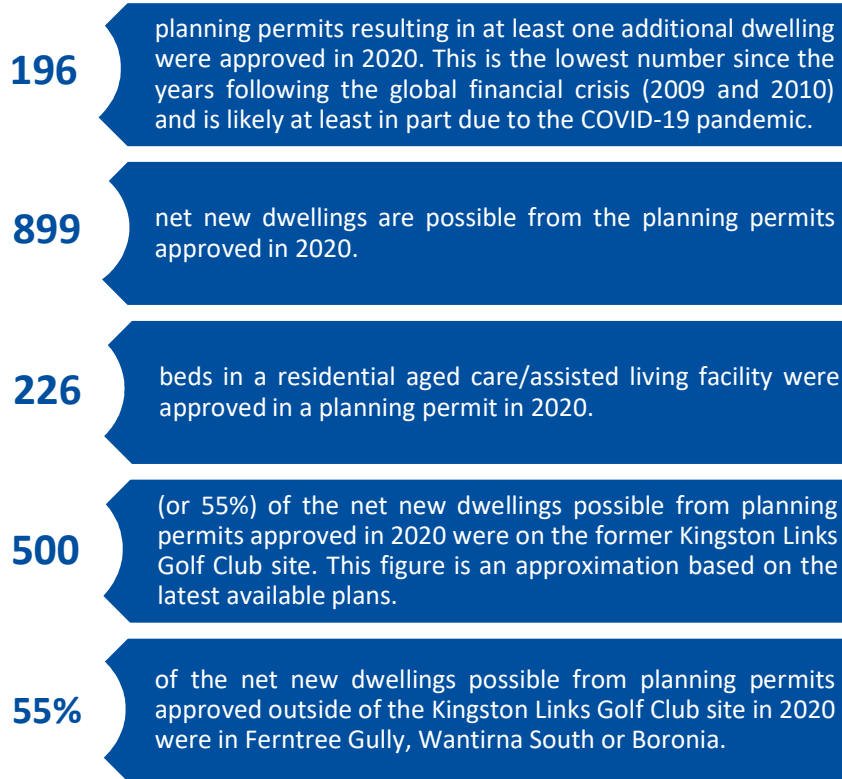


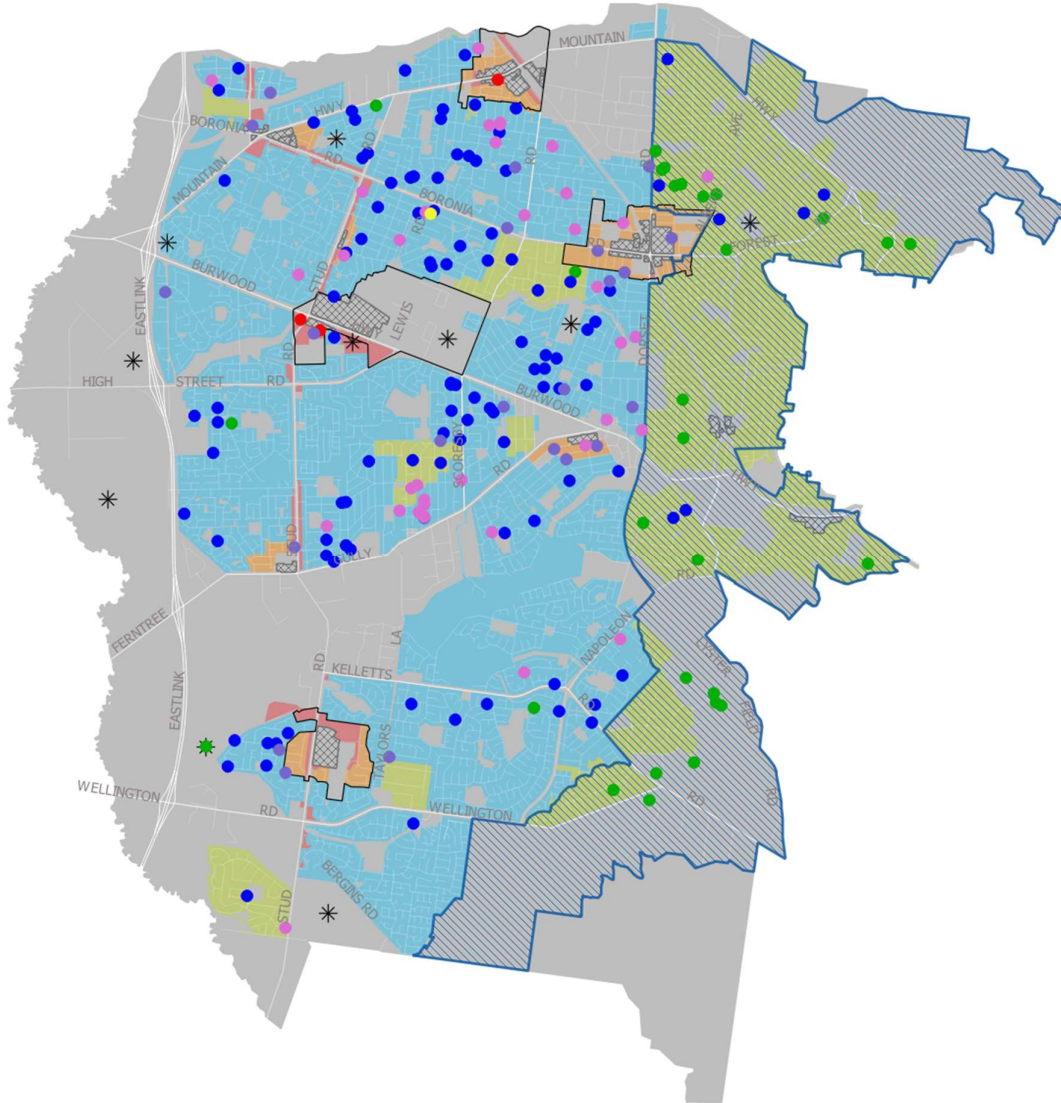
Figure 1 shows that potential net growth in dwellings from approved planning permits was not unusually low in 2020, despite the low number of permits granted. This was because of the approved subdivision of the former Kingston Links Golf Club site, a Strategic Site for housing identified in the *Knox Housing Strategy 2015*. Since the *Knox Housing Strategy 2015* was adopted, 25% of potential net dwellings growth in Knox has been within Strategic Sites.

Figure 1. The number of planning permits resulting in at least one additional dwelling approved in 2020 was low compared to previous years.

However, due to the large yield of the former Kingston Links Golf Club site, the potential net growth in dwellings was not unusually low in 2020.



Map 2. Planning permits approved in 2020 that will yield at least one net new dwelling if enacted



Housing Strategy Areas

- Bush Suburban
- Knox Neighbourhood
- Local Living
- Activity Area
- Activity Centre boundary
- Activity Areas (retail/commercial/residential)
- Dandenong Foothills Area (separate planning controls apply)

Dwelling type

- Aged care
- Apartments
- Townhouses
- Villa Units
- Dual Occupancy
- Detached Dwellings

* Strategic Sites for housing

5. A diversity of housing is provided in appropriate locations

5.1 Why is this important?

While demand for larger detached dwellings in Knox will continue, having a mix of housing options ensures the city caters to existing and potential residents at all stages of life and of diverse economic means. Council also seeks to protect and enhance the “green and leafy” character of Knox that is valued by so many in the community. This means encouraging diverse housing with increased densities in Activity Areas and Local Living areas (close to transport, shops and services) to provide more housing options, while discouraging intensive development in Bush Suburban and Knox Neighbourhood areas to preserve these neighbourhoods’ green and leafy character and areas of environmental significance.



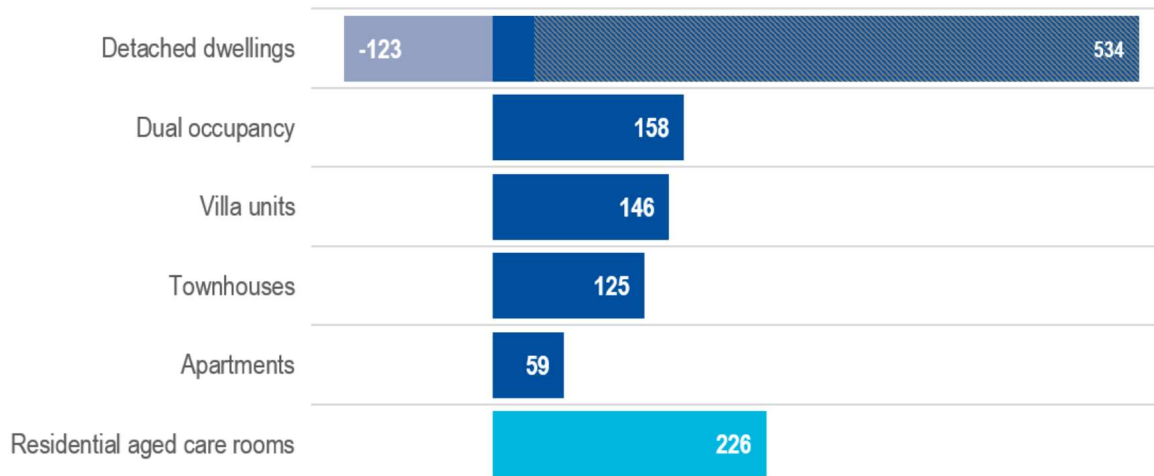
In 2016, 84% of the dwellings in Knox were detached dwellings, 90% of which had three or more bedrooms.
(2016 Census)

5.2 How are we tracking?

More than half of the new dwellings approved in 2020 were detached dwellings. The types of dwelling (see Attachment A for dwelling type definitions) for which planning permits were approved in 2020 are shown in Figure 2.

Figure 2. In 2020 detached dwellings accounted for more new dwellings in approved planning permits than any other type of dwelling. All demolitions in approved planning permits were detached dwellings.

Of the 534 detached dwellings, 500 (shaded) were approved for the former Kingston Links Golf Club site.



Note: Includes dwellings not in a Housing Strategy area (that is, outside the urban growth boundary, and within Strategic sites or Commercial Areas).

Table 1 shows the number of new dwellings in approved planning permits, and the preferred dwelling type for each Housing Strategy area. No dwellings approved were less dense than the preferred type for their Housing Strategy area, but 56% of the townhouses and villa units approved in 2020 were in Bush Suburban or Knox Neighbourhood areas where they are a denser than preferred housing type. These approvals included a range of mitigating factors that played an important role in these decisions by Council, as outlined in Section 5.3.

Figures 3 and 4 show the proportion of approved planning permits and approved new dwellings that were for the preferred dwelling typology. See Attachment B for net growth in dwellings, by typology, over the past five years.

Table 1. Number of new dwellings by dwelling typology and Housing Strategy area

Area type		Net new dwellings	Total new dwellings	Detached dwellings	Dual occupancy	Villa units	Townhouses	Apartments / Mixed use
Outside the Urban Growth Boundary	All lots - includes rural and other non-residential zones	8	8	8	0	0	0	0
Bush Suburban	All lots - min. subdivision requirements apply	50	61	21	19	21	0	0
Knox Neighbourhood	Lots under 1000m2	140	205	5	135	44	21	0
	Lots over 1000m2	100	133	0	2	70	61	0
Local Living	All lots - additional controls from local plans may apply	29	39	0	2	11	26	0
Activity Areas	All lots - additional controls from local plans may apply	52	55	0	0	0	8	47
Commercial Areas	All lots - additional controls from local plans may apply	20	21	0	0	0	9	12
Strategic Sites (Kingston Links site)	All lots - additional controls from local plans may apply	500	500	500	0	0	0	0

PREFERRED HOUSING TYPE

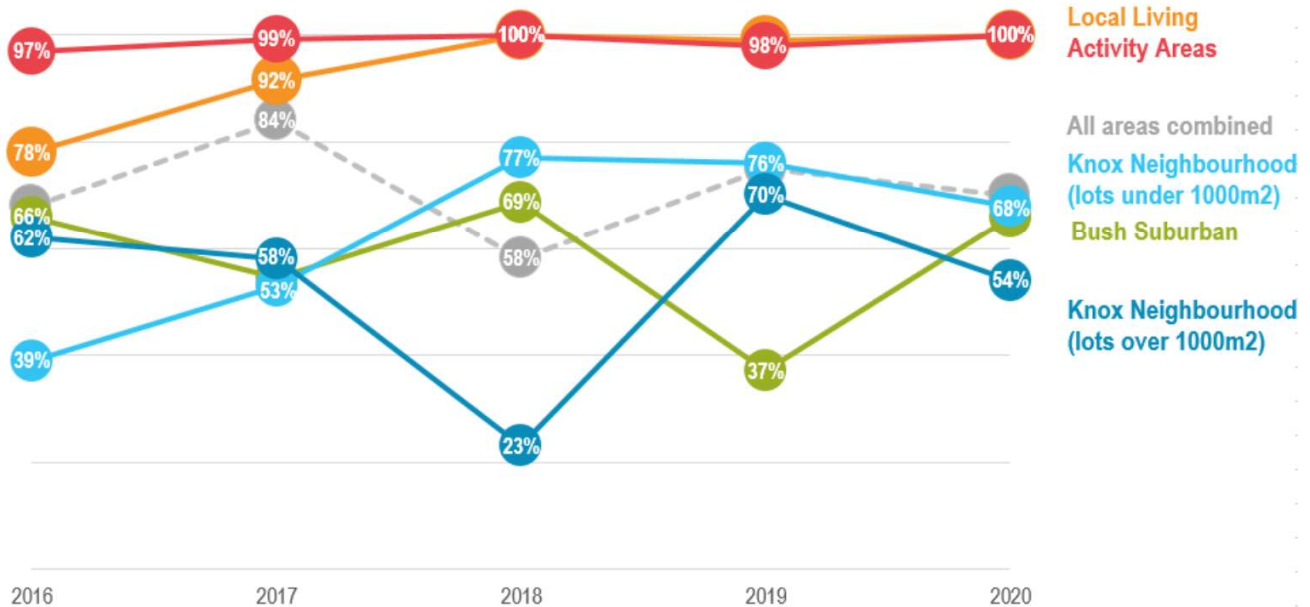
Figure 3. The majority of the planning permits approved in 2020 were for a dwelling typology preferred within the respective Housing Strategy area.

However, it was a smaller majority for large lots in Knox Neighbourhood areas.



Figure 4. Almost all new dwellings approved in **Local Living** and **Activity Areas** since 2018 have been the preferred typology for the Housing Strategy area in which they are located.

Areas where lower densities are preferred tend to perform less well.



Note: The unusually low proportion of dwellings approved in 2018 for large Knox Neighbourhood lots that were of the preferred typology was highly influenced by a single application for 294 townhouses at the site of the former Wantirna Caravan Park that was approved at VCAT after being refused by Council.

5.3 Analysis

- For the first time since 2013 townhouses were not the most numerous approved dwelling type in 2020 (see Attachment B for a time series). In 2020, detached dwellings were by far the most numerous dwelling type. This is mainly due to the approved subdivision of the former Kingston Links Golf Club site, a Strategic Site identified in the *Knox Housing Strategy 2015* which is estimated to yield around 500 new detached dwellings. This site is also expected to include medium density dwellings and likely also apartments, which will be captured in future housing monitoring reports once the associated planning permits are approved. New dwellings in dual occupancy settings were also more numerous than townhouses in planning permits approved in 2020.
- There were only 35 permits approved on Bush Suburban sites in 2020 totalling 61 new dwellings. This low dwelling total means that a few developments of the non-preferred dwelling typologies can have a relatively large impact on the proportions shown in Figure 4. Indeed, although 89% of the permits for Bush Suburban areas were of the preferred typology, a comparatively low 66% of the dwellings in approved permits were of the preferred typology. This is due to villa unit developments on four sites, the largest being an eight (net) dwelling development for which Council's refusal was overturned at VCAT². Were it not for this permit, the proportion of dwellings approved in Bush Suburban areas that were of the preferred typology would have been 75%.

² Among its reasons for refusing a permit was Council's assessment that the proposal did not comply with the preferred character of the Bush Suburban area. An amended proposal which provided greater protection to vegetation and altered the roofline of two dwellings was supported by Council and approved at VCAT

- In 2020 the proportion of dwellings approved for large Knox Neighbourhood lots that were of the preferred typology declined after a 2019 peak. This decline was due in part to:
 - a 17 (net) dwelling townhouse development on Taylor's Lane in Rowville. Council's initial refusal of a permit for this development was overturned at VCAT.
 - a 20 (net) dwelling townhouse development on Commercial Road in Ferntree Gully. A previous application for a development of 28 dwellings on this site had been refused by Council, the refusal later being upheld at VCAT. The permit granted by Council in 2020 was for five fewer dwellings than the previous applicant had sought.
- The proportion of dwellings approved on smaller (less than 1000m²) Knox Neighbourhood lots that were the preferred typology was lower in 2020 than over the previous two years. This was due to 21 approved villa unit and townhouse developments for 65 new dwellings. These approvals included a range of mitigating factors that played an important role in these decisions by Council. For example:
 - Smaller townhouse developments of three to four units have become more common over recent years. These can deliver better neighbourhood character outcomes than traditional villa units, as their more compact built form can provide larger landscaped areas for trees and open space. Nineteen of the 21 villa unit or townhouse developments approved in 2020 on smaller Knox Neighbourhood lots were of three dwellings, and the remaining two were of four dwellings.
 - Of the 14 approved villa unit developments on smaller Knox Neighbourhood lots, seven were on lots of greater than 950m², which puts them close to the threshold lot size for large Knox Neighbourhood lots (1000m²), where villa units are a preferred dwelling type.
 - Four of the approved permits were approved at VCAT after being refused by Council. Section 10 includes an overview of VCAT decisions made in 2020.

6. Residential development better responds to the community's needs, and allows people to age-in-place.

6.1 Why is this important?

Knox is forecast to grow by 5,876 households between 2021 and 2031 ([Knox Forecast .id](#)³). By this time almost one in three residents will be over 55 years of age.

Smaller dwellings tend to be less expensive and easier to maintain, providing an attractive option for first homebuyers, ageing residents looking to downsize, and anyone keen to reduce their living costs.

6.2 How are we tracking?

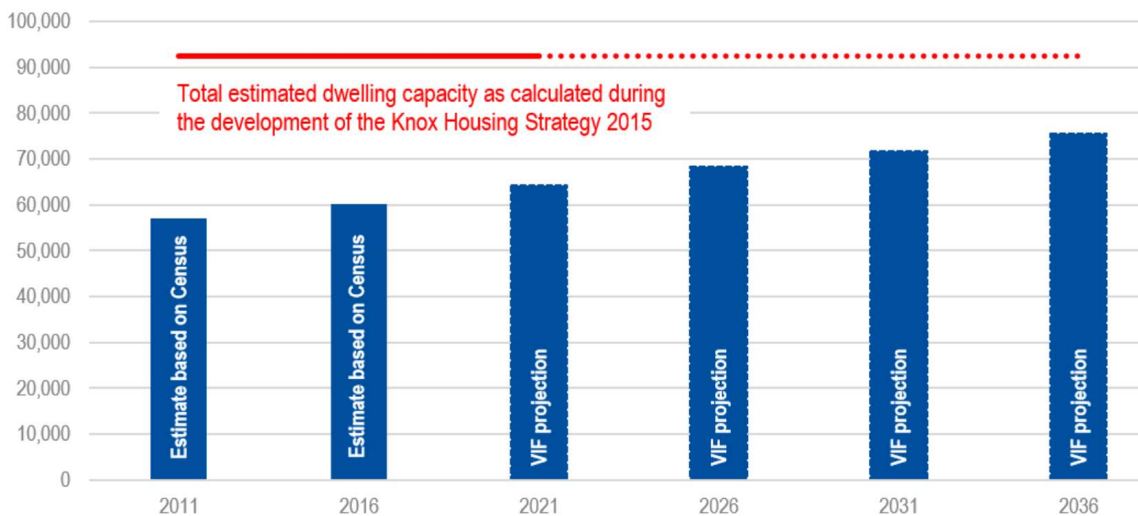
The *Knox Housing Strategy 2015* estimated that Knox had capacity for 36,000 additional dwellings (approximately 92,500 dwellings in total) if each lot were developed to its full potential within the constraints of planning provisions. Based on the Victorian government's Victoria in Future projections ([DELWP 2019a](#)⁴), future growth can be accommodated within Knox's estimated capacity until at least 2036 (Figure 5). However, these capacity estimates are based on broad assumptions made within the policy context of the *Knox Housing Strategy 2015*, and were intended to inform the 10-year lifespan of that document. These estimates will be revisited at the review of Knox's Housing Strategy.



Average household size in Knox is declining. The number of couple only and lone person households in Knox is forecast to surpass the number of families with children in 2024.

([Knox Profile .id](#), [Knox Forecast .id](#))

Figure 5. It appears that forecast dwelling numbers in Knox can be accommodated within applicable planning provisions (estimated capacity) until at least 2036.



³ Knox Forecast .id is produced on behalf of Council and based on levels of residential development and demographic assumptions, such as in and out migration rates from local areas.

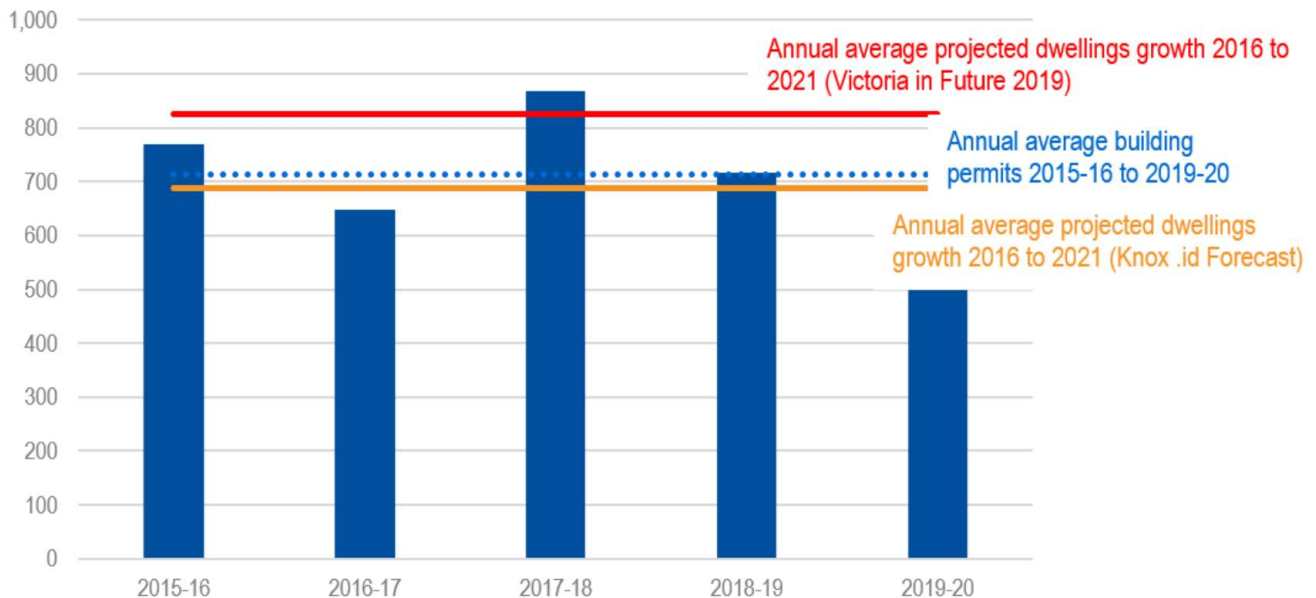
⁴ The DELWP Victoria in Future (VIF) dwelling projections are applied here as they are calculated using a top-down model. In contrast to the forecasting method employed by id on behalf of Council, in which only local factors and trends are taken into account, the VIF projections include assumptions about state level growth and then allocate this to local government areas. VIF forecasts greater dwelling growth for Knox than is forecast by .id, and therefore the VIF forecasts represent a more conservative benchmark for capacity assessment.

One way to assess the actual number of new dwellings built against forecasts is to look at data on building permits. Planning permits relate to a proposed development and provide insight as to what could be built in the next two to four years. Building permits relate to construction and are therefore a stronger indicator of actual dwelling growth.⁵ Building permits were granted for 4,216 new dwellings in Knox during the five financial years 2015-16 to 2019-20, equivalent to an annual average of 843 new dwellings constructed.

However, this overestimates the real increase in dwellings because building permit data does not take into account demolitions. To estimate the number of dwellings that were demolished to make way for new dwellings in building permits the relationship between demolitions and new dwellings in planning permits has been used.

In the five years 2015 to 2020, there was one demolition for every 6.47 dwellings approved in *planning* permits. Applying that same rate to *building* permits gives an annual average of 713 new dwellings built across Knox over a five year period. That figure is between the State Government’s Victoria in Future projection of 826 new dwellings per year between 2016 and 2021, and the forecast calculated by .id on behalf of Council of 687 new dwellings per year (Figure 6).⁶

Figure 6. The number of new dwellings approved in building permits (adjusted for assumptions about demolitions) in Knox is broadly in line with dwelling growth projected by the Victorian Government and that forecast on behalf of Council.



Almost three-quarters of the net growth from planning permits approved in 2020 was dwellings of four or more bedrooms (Figure 7). This assumes that the single dwelling lots produced by the approved subdivision of the former Kingston Links Golf Club site will each yield one dwelling of four or more bedrooms. This site may also yield smaller dwellings within the medium density and mixed use sections, which will be subject to future planning permit processes. More detail on these aspects of the Kingston Links Golf Club site development will become available as the associated planning permit applications are submitted to Council.

⁵ The main reason the Housing Monitoring Report uses planning approvals data is that it is available at address level and is a very robust and reliable dataset that is wholly maintained by Council.

⁶ Alignment between building approvals data and the dwelling forecasts prepared by the Victorian Government and on behalf of Council is expected because building approvals are taken into account in calculating these forecasts.

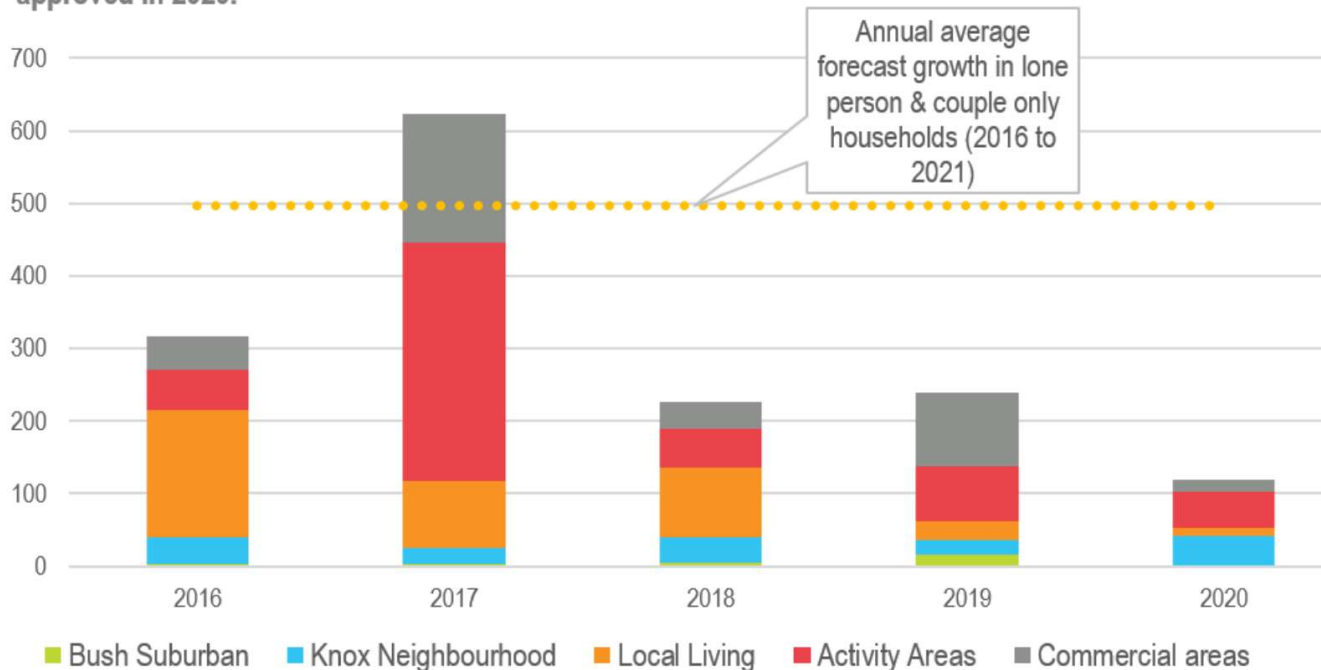
Figure 7. The planning permits approved in 2020 would see most of the net growth being four bedroom dwellings. Most of the four bedroom dwellings will be within the former Kingston Links Golf Club site.



Note: Includes dwellings not in a Housing Strategy area (that is, outside the urban growth boundary and within Strategic Sites or Commercial Areas).

A net total of 119 small dwellings⁷ (two bedrooms or fewer) were approved in Knox in 2020, which was lower than previous years (Figure 8). Of the growth in small dwellings in Housing Strategy areas over the past five years, 84% was in Local Living areas (within walking distance of local shops and with access to several transport options to get to other locations) or Activity Areas (either located on a SmartBus route or close to regional infrastructure such as train stations, bus interchanges, universities, large shopping centres, leisure facilities and employment opportunities). The last five years have also seen growth of 381 net small dwellings in Commercial areas.

Figure 8. Relative to the last four years, few net new small dwellings (two bedrooms or fewer) were approved in 2020.

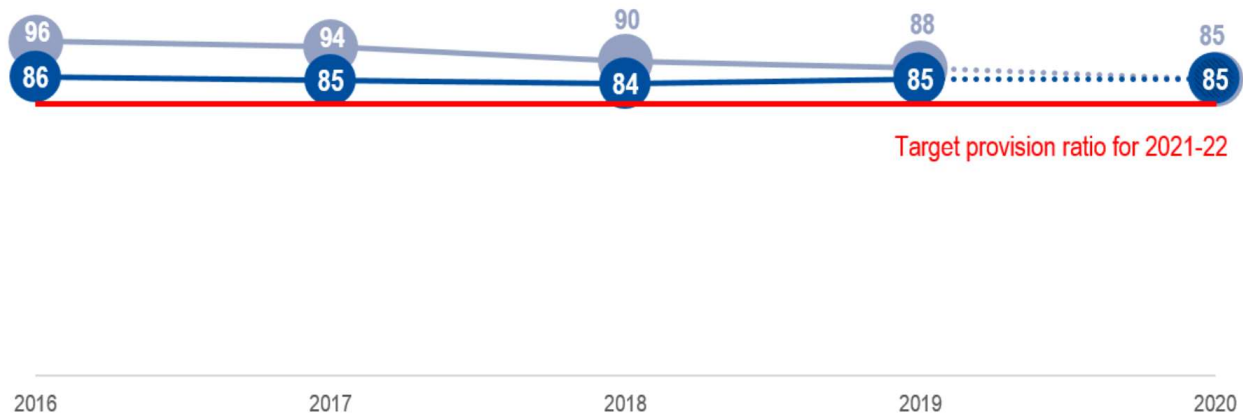


Note: Residents of non-private dwellings, such as residential aged care facilities, are not included in household forecasts.

⁷ This figure excludes the 226 new rooms in an aged care facility that was also approved in 2020.

There were 1,606 places (typically a single room with en suite) in residential aged care facilities in Knox in June 2020 (AIHW 2020) and approximately 19,000 residents aged 70 years and over living in Knox at that time ([Knox Forecast .id](#)). This is equivalent to 85 places in residential aged care facilities per 1,000 residents aged 70+ (Figure 9). The Australian Government target provision for residential aged care places was⁸ 78 places per 1,000 residents over the age of 70 by 2021-22 (ACFA 2020), placing Knox above the target provision level.

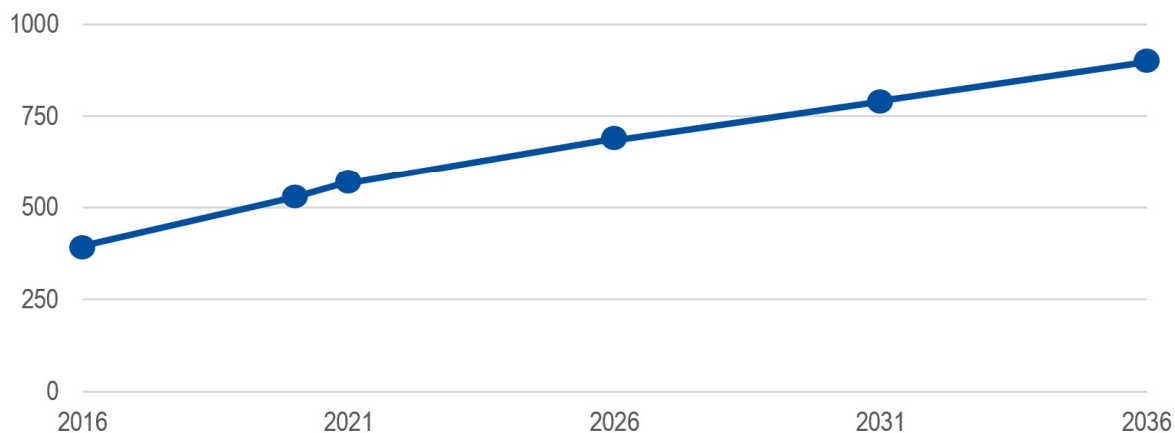
Figure 9. In 2020 there were approximately 85 residential aged care places in Knox per 1000 residents aged 70+ .
This is the same as the ratio across the [Eastern Metropolitan Region](#).



Note: 2020 results are presented as dashed because the ratio is based on population forecasts rather than population estimates.

There were 1,493 social housing dwellings in Knox at June 2020. This is up 24 dwellings from June 2019 (DHHS 2019). Based on the availability of social housing and affordable lettings, the shortfall of social housing dwellings in Knox was estimated to be 530 in 2020. Without intervention, this shortfall is projected to increase (Figure 10).

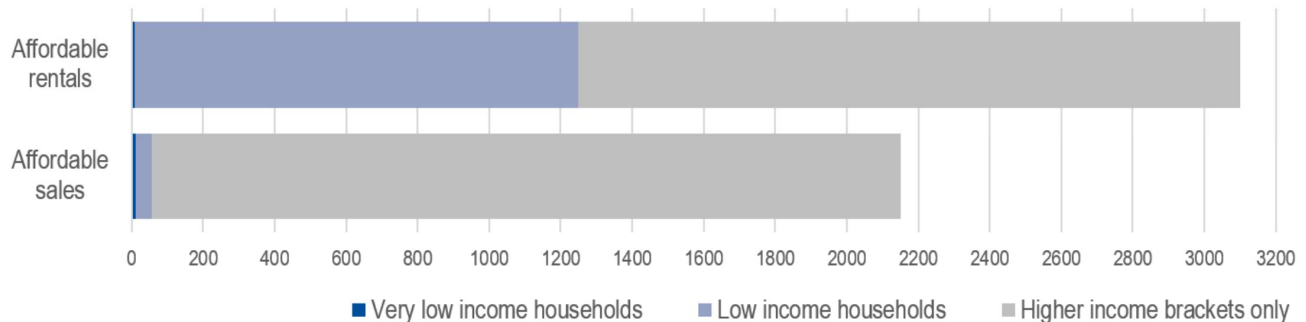
Figure 10. There is a persistent gap between supply and estimated need for social housing in Knox.
If the number of affordable or social housing dwellings in Knox does not grow, this gap will increase.



The median house price in Knox increased 3.8% during the five years to June 2020, when it was \$800K. The median unit price increased 4.4% to \$580K over the same period ([Housing .id](#)). Only 57 of the dwellings sold (2.6%) and 1,248 of the rentals let (40.2%) in Knox during 2019-20 were affordable to households on a low income. Even fewer sales and rentals were affordable to households on a very low income (Figure 11).

⁸ Past tense is used because the separate target ratios for residential and home care places are likely to be replaced by a single “overall” ratio. This is to allow the Government flexibility to direct funding to home care or residential care in response to consumer preferences ([ACFA, 2019](#)).

Figure 11. In the year to June 2020 only 11 sales and 10 rentals were affordable to households on a **very low income**.



6.3 Analysis

- Knox planning provisions are likely to accommodate population growth forecast by the Victorian Government at least until 2036. Indeed, the Victorian Government’s population forecasts have not been updated since the COVID-19 pandemic, which has inhibited overseas and interstate immigration (Victoria is now growing only by births) and may, over the longer term, result in lower than anticipated growth (.id 2020a, .id 2020b).
- A low number of building permits were issued in 2019-20 compared to previous years. This has brought the estimated annual average net gain in dwellings closer to (but still above) Council’s dwelling forecasts.
- Of the net additional dwellings approved in planning permits in 2020, 13% had two bedrooms or fewer. If the Kingston Links Golf Club site is excluded, the figure become 30%, which is more typical of years where no large subdivisions are approved (e.g. 40% in 2019, 44% in 2017 and 37% in 2016). Growth in small dwellings does not appear to be matching likely growth in small households. This highlights a potentially increasing challenge for Knox in terms of providing sufficient options for those seeking smaller dwellings.
- New one-bedroom dwellings approved in 2020 were limited to four sites; a dual occupancy development of one new one-bedroom dwelling, a villa unit development of four new one-bedroom dwellings, and two apartment buildings incorporating 10 one-bedroom dwellings each, both in Wantirna South.
- The number of residential aged care places per Knox resident aged 70 and over has remained relatively static as both the supply of places and the older population have increased. Current supply meets the Australian Government target and will increase if the 226 bed (135 aged care, 91 assisted living) residential aged care facility approved in 2020 (or either of the two residential aged care facilities approved during 2019) are built.
- There were an estimated 19,479 low or very low income households in Knox at the 2016 Census ([Housing .id](#)). There are very few dwellings (including units) in Knox that a household on a very low income (less than \$43,645 per annum) could afford to buy or rent. Low income (\$43,646 to \$69,810 per annum) households have more rental options, but will still find very few dwellings affordable for purchase. The “affordable” housing threshold is \$251K for very low income households and \$401K for low income households. The median unit price in Knox at June 2020 was \$580K, around 40% higher than the low income affordability threshold.
- The number of social housing dwellings in Knox increased between July 2019 and June 2020 due partly to 24 apartments in Bayswater which opened early in 2020. In addition, nine social housing dwellings are expected to be provided at Stockland’s Waterlea development (part of the Stamford Park Redevelopment) in Rowville during 2020 and 2021, while the owners of the former Kingston Links Golf Club site have an agreement with Council that secures the provision of future social housing on that site. Other Strategic Sites identified in the *Knox Housing Strategy 2015* which could incorporate new social housing include the former Boronia Heights School and the former Norvel Road and Boral Quarries. Data from the 2016 Census suggests that 48% of Knox households that need social housing are small households (couple only or lone person) ([Housing .id](#)).

7. Energy, water, and waste efficient design are increased in dwellings

7.1 Why is this important?

Extreme weather events like heatwaves, storms, and floods are becoming more frequent, and the impact of climate change on the Knox community and its infrastructure, economy, and natural systems is a key challenge for Council. Knox residents recognise the importance of sustainability and quality in building design. With energy and water prices and the cost of landfill disposal increasing, efficient use of resources can also help with cost of living pressures.

7.2 How are we tracking?

Council requires that any planning permit application for two or more new dwellings be accompanied by an assessment of the sustainability of the development. Included must be an assessment of measures for reducing potable water consumption and greenhouse gas emissions. The best practice target of a 25% reduction in potable water consumption was met by all but two of the 71 multi-dwelling developments assessed during 2019-20. The greenhouse gas emissions target of a 50% reduction was met by just under three quarters (Figure 12).

7.3 Analysis

- There are no set targets for the proportion of new buildings meeting best

practice in greenhouse gas emissions or potable water consumption, and each developments' means of achieving reductions can vary considerably. Things taken into account in assessing emissions include the energy efficiency star rating of the home and the star ratings committed to for heating, ventilation and air-conditioning products. Things taken into account in assessing potable water consumption include rainwater storage and the water efficiency of shower heads.

- In 2019-20 Council revised its approach to Environmentally Sustainable Design permit conditions and the endorsement of developments. This was done to ensure that Environmentally Sustainable Design commitments are reflected on development plans and actually delivered upon construction. This change in approach means that 2019-20 outcomes are not comparable to earlier results, which had suggested that residential design in Knox is improving in terms of potable water consumption and greenhouse gas emissions. Over time it is hoped that a new time series will be possible to monitor progress on this measure.



An estimated 3.4 million tonnes of CO₂ equivalent emissions were generated in Knox in the 12 months to June 2019 – 16% from residential energy use.

[\(Snapshot emissions report 2020\)](#)

Figure 12. The proportion of applicable* new buildings assessed as meeting sustainability targets is higher for potable water consumption than greenhouse gas emissions.



**Includes only permit applications for two or more new additional dwellings.*

8. Housing design is improved to better respond to neighbourhood identity and create a stronger sense of place

8.1 Why is this important?

Knox is known for its green and leafy neighbourhoods, quiet streets, and a mix of city and country feel, which has attracted people to the area for decades. However, this form of development has also led to a dependence on cars, which in turn has resulted in reduced amenity for Knox residents.

As land values in Knox have increased over time, redevelopment has introduced new types and styles of housing into Knox’s neighbourhoods that are changing the look and feel of the city.

8.2 How are we tracking?

In the 2020 Municipal Survey 1,120 Knox residents were asked:

- How important the type and affordability of housing in Knox is to them.
- How satisfied they are with the type and affordability of housing in Knox.

Of the fifteen features of Knox assessed in the Municipal Survey, the type and affordability of housing was of moderate importance⁹ (with six features of less importance, seven of greater importance, and one of equal importance). The type and affordability of housing was also the feature with which residents were least likely to be satisfied¹⁰ (Figure 13).

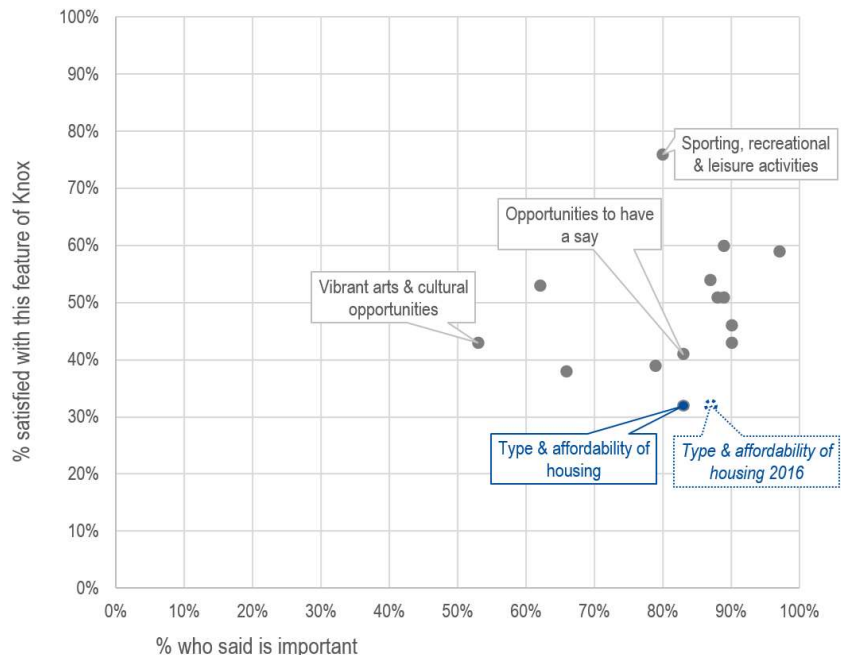
Walk Score is an index which estimates the walkability of a place based on its proximity to local shops, services, schools, entertainment, and jobs. On a scale of 1 to 100, areas with a Walk Score greater than 70 are considered “very walkable” or “walkers’ paradise,” a rating which applies to the location of just over one quarter of the new dwellings approved in Knox in 2020 (Figure 14).



The Knox population increased by around 19,300 people between 2000 and 2020.

(ABS 2021 & ABS 2001)

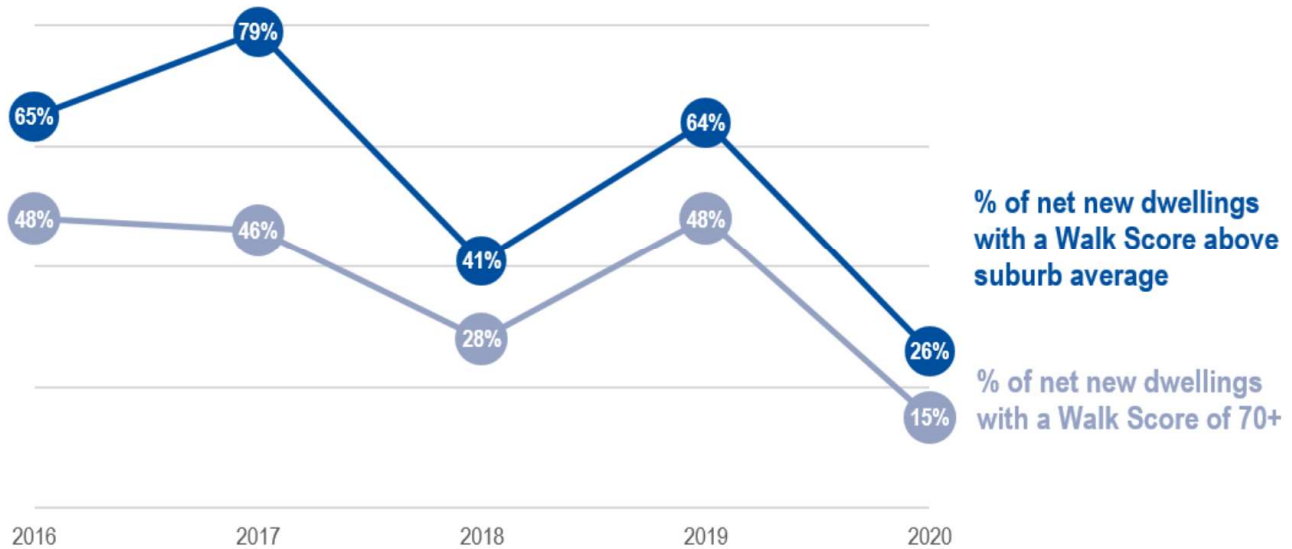
Figure 13. In 2020 **type and affordability of housing** was important to most residents and the feature of Knox they were least satisfied with (of those measured).



⁹ Based on an importance rating of either 4 or 5 on a scale where 5=very important and 1=not at all important.

¹⁰ Based on a satisfaction rating of either 4 or 5 on a scale where 5=very satisfied and 1=very dissatisfied.

Figure 14. The proportion of net new dwellings approved in the more walkable areas of Knox decreased in 2020.



8.3 Analysis

- Most residents see the type and affordability of housing as an important feature of Knox, equivalent in importance to “opportunities to have a say on matters that affect the community.” However, Knox residents are not as satisfied with this aspect of Knox as they are with other aspects. The Municipal Survey does not provide insight into what specific aspects of the type and affordability of housing are seen to be less satisfactory. It did reveal, however, that the importance of the type and affordability of housing was higher, and satisfaction with this feature of Knox lower, among younger residents (25 to 34 years) than among seniors (70 and over).
- Walkability varies across Knox. The activity centres of Bayswater, Boronia and Ferntree Gully are near to train stations and have main streets lined with shops, and score higher on walkability as a result. In contrast, much of Rowville, Lysterfield, and the Dandenong Foothills are classified as “car dependent.” The dip evident in 2018 in the proportion of new dwellings approved within more walkable areas of Knox (Figure 14) reflects the fact that the largest development approved in that year (the site of the former Wantirna Caravan Park) was in a “somewhat walkable” location. The 2020 dip, in contrast, can be attributed partly to the approved subdivision of the former Kingston Links Golf Club site, which has been estimated to yield around 500 dwellings in a “Car Dependent” area. This site will eventually include some mixed used precincts which will enhance its walkability. The 2020 dip is also partly due to the small number of apartments approved. Apartment buildings typically accommodate a large number of dwellings relative to other dwelling typologies, and tend to be located in or near activity centres, where walkability tends to be high. Each approved apartment development, therefore, often contributes substantially to the number of highly walkable dwellings approved. In 2017, for example, when the proportion of approved dwellings in more walkable locations than the suburb average was at its highest (among the years assessed), 372 apartments were approved. In contrast, in 2020 only 59 apartments were approved.

9. Protect and enhance the landscape and environmental value of natural areas of significance

9.1 Why is this important?

Knox enjoys a spectacular natural setting, located at the foot of the Dandenong Ranges and crisscrossed by creeks and wetlands that provide habitat for native animals and peaceful respite to residents.

Council has well-established policy and planning controls that aim to protect the landscape and environmental values of the area through constraints on vegetation and residential design. There are also 118 identified Sites of Biological Significance in Knox that include remnant and indigenous vegetation. These areas also have specific planning controls that restrict the removal of vegetation, and residential design guidelines that include higher requirements for new canopy trees.

As the Knox population grows, it will be increasingly important to ensure that new development does not erode Knox's unique sources of environmental value.



In 2012, 4% of the original native vegetation or areas with indigenous tree cover remained within Knox ([Knox Genetic Integrity Policy 2015](#)).

9.2 How are we tracking?

Automated analysis of aerial imagery by DELWP in partnership with others (including RMIT and CSIRO) revealed that in 2018, 16.3% of Knox's urban area¹¹ was covered by tree canopy (trees with an estimated height of three meters or more) (DELWP 2019b). In contrast, that same analysis estimated that 22.6% of the Eastern Region's¹² urban area was covered by tree canopy (DELWP 2019c). Without Yarra Ranges, which has by far the greatest canopy cover of the Eastern Region local government areas (34%), this figure becomes 18.9%.

Further analysis of the spatial data provided by DELWP shows an overall loss of 115 hectares of canopy cover (or 29 hectares per annum) from Knox's urban areas between 2014 and 2018, which is equivalent to a reduction of 6.5%. The urban areas of the Eastern Region saw a loss of 9.2% over the same period (DELWP 2020).

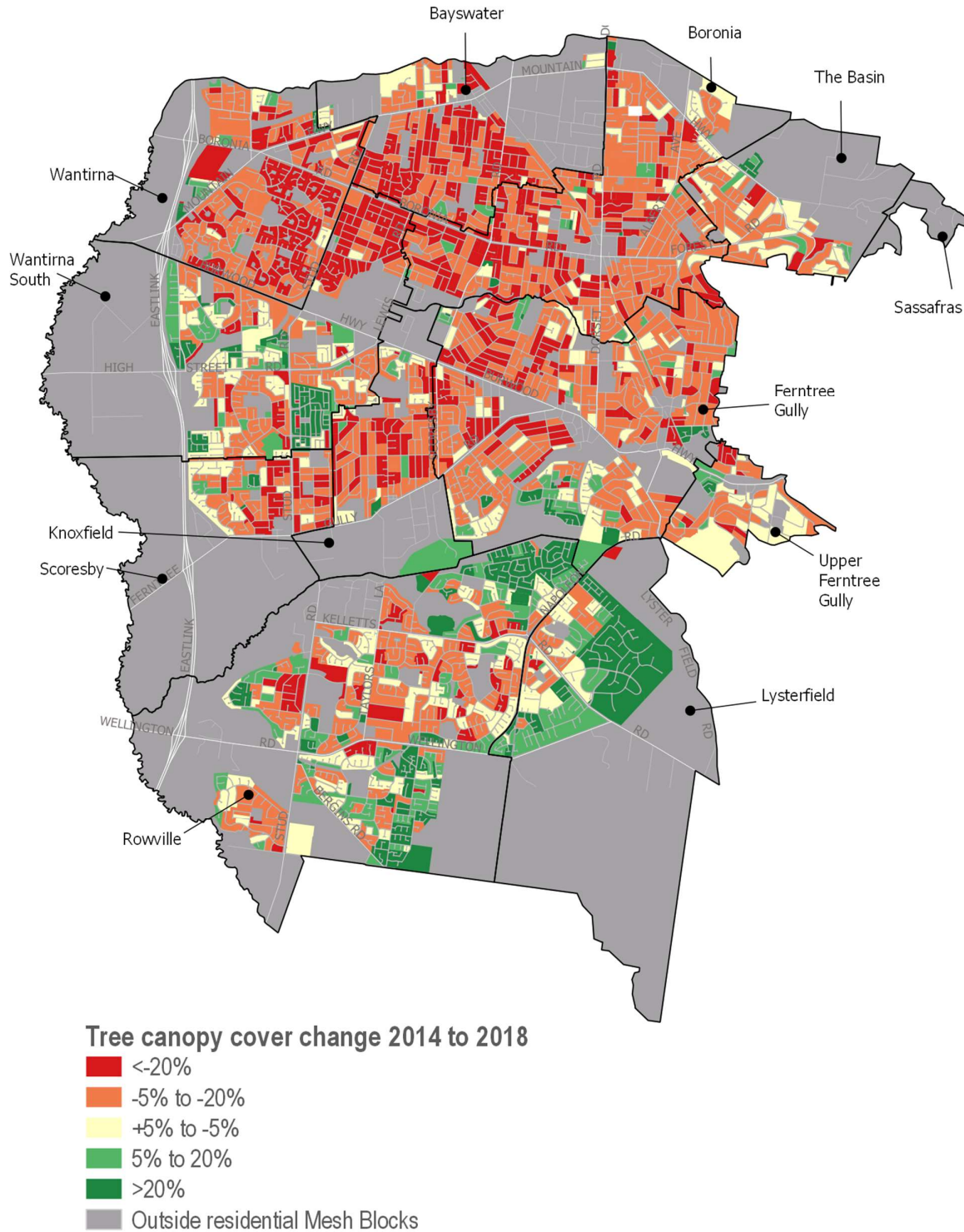
Map 3 shows change in tree canopy for partial Mesh Blocks¹³ defined by DELWP as predominantly "private residential" land use. Of the 2,054 "private residential" partial Mesh Blocks in Knox, 1,530 (74%) saw some tree canopy loss between 2014 and 2018. In total, 97 hectares (11%) of tree canopy was lost from these areas. Areas of declining tree canopy were spread throughout Knox, but evident particularly in the northern half of the municipality. Increases in tree canopy were evident in sizeable parts of Rowville, Lysterfield and Wantirna South.

¹¹ Excludes some of Rowville and Lysterfield, including Lysterfield Lake Park and the Green Wedge Zone along Lysterfield Road.

¹² Comprised of Knox, Manningham, Maroondah, Monash, Whitehorse and Yarra Ranges.

¹³ Mesh Blocks are the smallest geographic unit compiled by the Australian Bureau of Statistics (ABS) as part of the Australian Statistical Geography Standard. Mesh Blocks provide a unit of measurement designed to accommodate approximately 30 to 60 dwellings. The ABS attributes each Mesh Block a principal land use to indicate the major land use within any given area. The partial Mesh Blocks developed by DELWP are based on the ABS Mesh Blocks, but modified to help separate canopy cover over publicly owned land within residential areas (road reserves, for example) from that over privately owned land.

Map 3. Many residential areas, particularly in the north of Knox, saw a loss in tree canopy between 2014 and 2018.



Source: The presented tree canopy change data is part of the Vegetation and heat datasets for Metropolitan Melbourne provided to Council by the Victorian Department of Environment, Land, Water and Planning in December 2019.

9.3 Analysis

- The DELWP dataset indicates that in 2018, 79% of tree canopy cover in Knox’s residential areas was over private land as opposed to road reserves and other public infrastructure. Around three times more “private residential” partial mesh blocks in Knox saw tree canopy loss than saw tree canopy gain between 2014 and 2018. While Knox has implemented policies and plans to protect the green and leafy character of Knox’s neighbourhoods (including *the Knox Housing Strategy 2015*, Vegetation Protection Overlays, the *Dandenong Foothills Policy*, and others), Council’s ability to control canopy loss on private property is only indirect.
- **Canopy gain associated with tree planting:** To help ensure future canopy cover, Knox has been undertaking tree planting in line with the *Street Tree Asset Management Plan 2016* (which resulted in a net gain of around 2,500 street trees between 2017-18 and 2019-20), and the *Knox Revegetation Plan*, in line with which Council plants between 80,000 and 120,000 local provenance plants (including trees) annually. But these programs do not address the loss of canopy trees on privately owned land.
- **Canopy gain associated with other factors:** The larger areas of tree canopy gain evident in Lysterfield and the north-eastern tip of Rowville appear to be due in part to the maturing of trees within the Carrington and Sovereign Crest housing estates, which began construction in the late 1990s and early 2000s, respectively. Both sites appear to have been largely clear of trees when construction began, so many of the trees in these estates will have been planted within a few years of each other. The large area of tree canopy growth evident in Wantirna South appears to be at least partly due to the maturing of trees in the Harcrest Estate (formerly the Austral Bricks Quarry) on which construction began in 2011. This site was also clear of trees prior to construction. It’s worth noting that these sites began from a low base in terms of tree canopy cover, with 2014 figures of 10% cover for Carrington, 6% for Sovereign Crest and 0.1% for Harcrest.
- **Canopy loss associated with redevelopment:** Maintaining tree canopy can be challenging in urban areas experiencing redevelopment from single houses to denser forms of development. Where large canopy trees are removed for multi-dwelling developments, the associated reduction in private open space may provide limited opportunity for tree planting and good tree health. West of Dorset Road, outside the Dandenong Foothills Policy Area, tree canopy loss appears to coincide in large part with the locations of approved planning permits for new dwellings (see Attachment C).
- **Canopy loss associated with bushfire management:** In the Dandenong Foothills Policy Area east of Dorset Road, planning permits for additional dwellings do not appear to account for some of the larger areas of canopy loss (see Attachment C). Knox’s Bushfire Management Overlay (BMO) applies to parts of the Dandenong Foothills. In Knox’s BMO areas, no planning permit is required to remove some trees from around older dwellings, even where controls such as Vegetation Protection Overlays apply.¹⁴ In 2014, around 102 hectares of Knox’s private residential tree canopy was on land covered by a BMO.¹⁵ The tree canopy on this land declined by around 10% by 2018, a loss roughly in line with decline in private residential tree canopy across Knox over that period.
- **Canopy loss associated with other factors:** Council issued 980 permits for vegetation removal in Knox between 2014 and 2018 (see Attachment D), 764 of which were within the Dandenong Foothills Area. Of those 764 tree removal permits, only 73 were for vegetation removal associated with subdivision or residential building. Other purposes for vegetation removal permits include clearing of trees towards the end

¹⁴ For homes in an area covered by a BMO the Planning Scheme allows residents to clear certain vegetation that poses a bushfire hazard without a planning permit. This rule (known as the 10/50 rule) allows the clearing of any vegetation (including trees) within 10 metres of a dwelling built before 10 September 2009 and vegetation (including trees) for a combined maximum of 4 metres either side of an existing boundary fence.

¹⁵ BMOs were introduced in 2011, replacing the Wildfire Management Overlays. The BMO area has changed somewhat over time and the BMO boundaries do not align with the partial mesh block boundaries applied to the tree canopy data, therefore the result presented here is indicative only, rather than an exact measure of canopy change within Knox BMO areas.

of their life or at risk of dropping limbs. There are some areas where canopy loss, but no approved vegetation removal permits or planning permits for new dwellings, are evident. For example:

- Much of the area south-east of Wantirna College saw canopy loss of greater than 20% between 2014 and 2018. Visual inspection of aerial imagery for selected partial Mesh Blocks in this area suggests trees appear to have been removed from around one in five properties between 2014 and 2018.
- A residential partial Mesh Block in Ferntree Gully at the base of the Dandenong Ranges saw tree canopy cover decline by 43% (from 48% canopy cover to 27% canopy cover). Aerial imagery from 2014 and 2018 shows clearing of vegetation on at least three private properties within the partial Mesh Block, which is included in Knox's BMO. It also suggested that canopy at this site was sparser in 2018, even where trees had not been removed, suggesting that tree health or related factors may also play a role in tree canopy reduction in this area.

10. Development responds to neighbourhoods in an integrated and balanced manner

10.1 Why is this important?

Planning for future housing needs is a complicated process that requires input from the community, policy experts, design professionals, and local landowners. The Knox Planning Scheme outlines Council’s goals and policies for the development of the city. It is the official reference for all decisions related to planning made by Council, planning officers, and VCAT. Consistency between Council policy, the Knox Planning Scheme, and Council decision-making processes is critical for the efficiency of Council’s planning decisions and the quality of the outcomes these decisions deliver.



VCAT decided 26 Knox residential planning applications in 2020, down from 32 in 2019 and 42 in 2018.

10.2 Indicator results

Planning applications that are decided by Council can be appealed to VCAT, which hears the case and makes a final ruling on whether to issue a permit based on the Knox Planning Scheme. The number of cases decided by VCAT and the proportion of Council decisions that are overturned are an indicator of the consistency between Council policy, the Knox Planning Scheme, and Council decision-making processes.

Figure 15. In 2020 VCAT overturned more Council decisions than it upheld. All overturned decisions had been Council refusals.

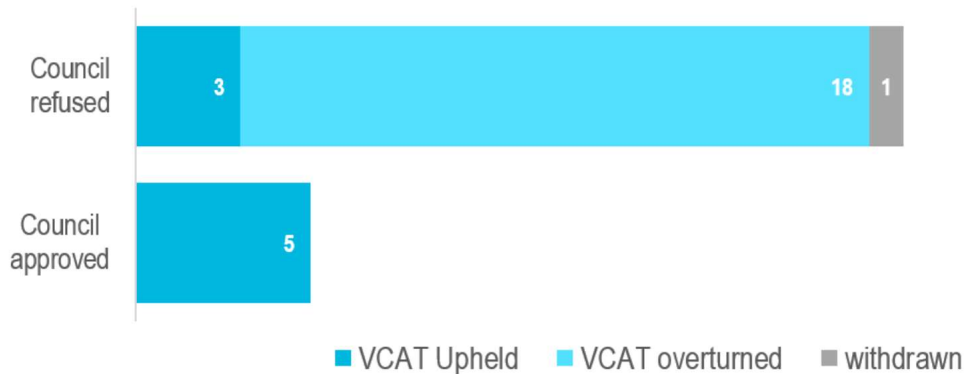
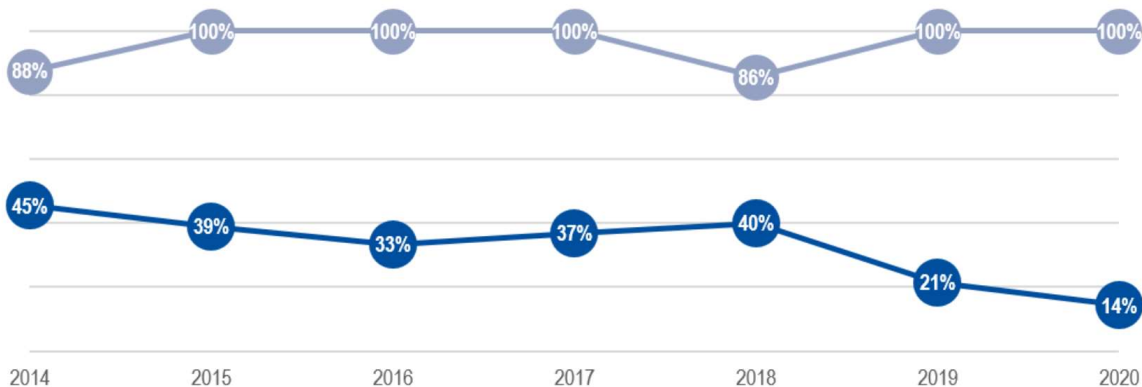


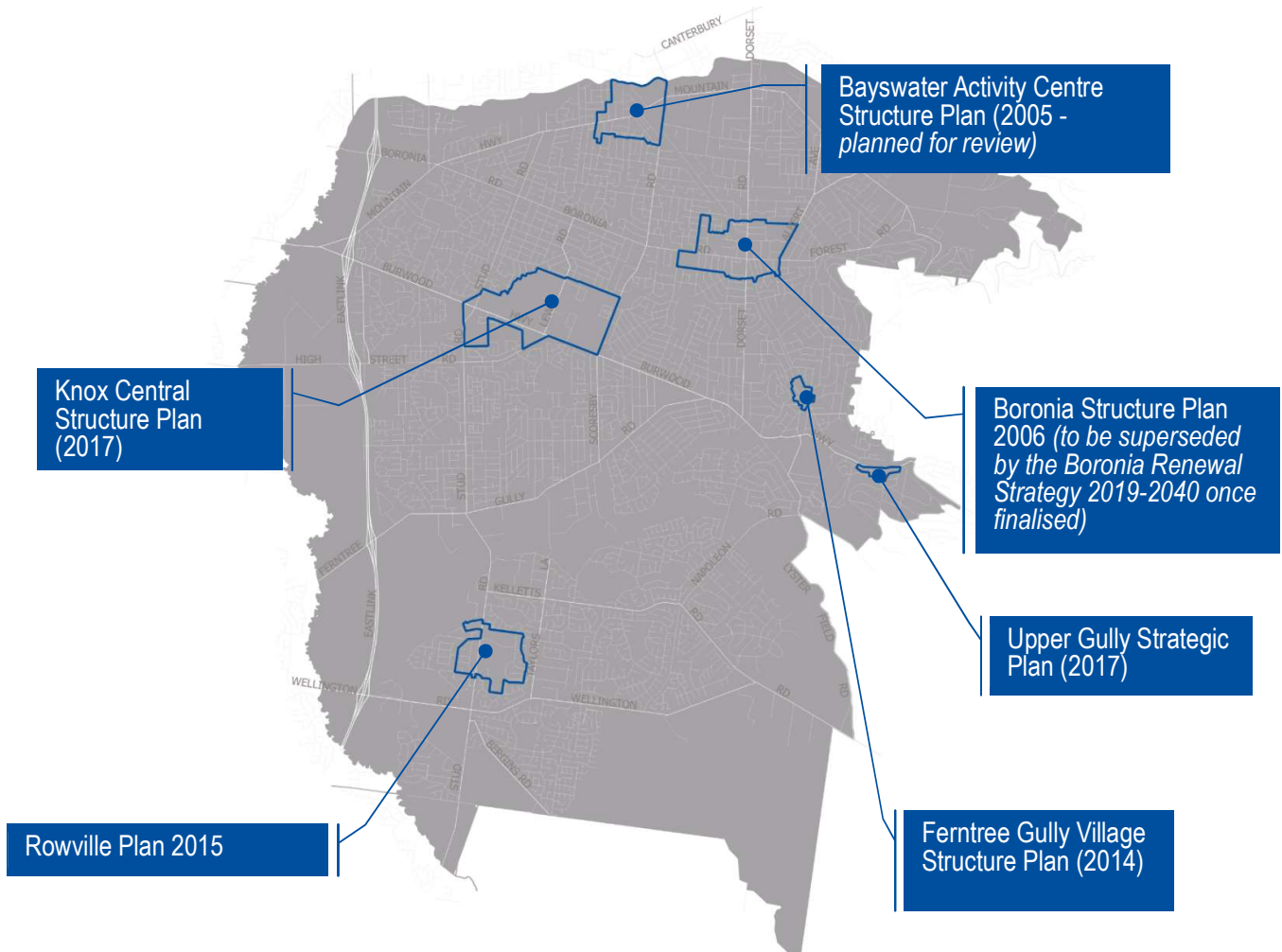
Figure 15 and Figure 16, which relate to VCAT decisions on planning permits that would yield at least one additional dwelling in Knox, show that VCAT upheld fewer Council decisions than it overturned in 2020.

Figure 16 .VCAT upheld at least 86% of Council approvals, and no more than 45% of Council refusals over the past 7 years.



In addition to the *Knox Housing Strategy 2015*, Council has developed structure plans and other local strategic plans that support place-specific planning controls and rezoning, and provide guidance for decisions on infrastructure and community services (Map 5).

Map 5. Plans and strategies that support place-specific planning controls.



10.3 Analysis

- Across the past five years VCAT has been much more likely to overturn a Council refusal than a Council approval.
- 2020 was the fifth year in a row that VCAT overturned more Council decisions than it upheld.
- In 2020, VCAT decided 21 planning applications that were initially refused by Council (either directly or by officers under delegation). VCAT set aside the original Council decision in 18 of these cases (86%), resulting in permits for 95 net new dwellings. However, for three of the four largest developments (in terms of dwelling count), the outcome ultimately approved at VCAT had been negotiated with, and supported by Council. These were:

- 35 new dwellings at 390 Burwood Highway in Wantirna South in a development consisting of three buildings incorporating apartments, a secondary school and student accommodation, offices, and retail space. This address is within an Activity Area, where villa units, townhouses and apartments are the preferred dwelling types. Council had refused a permit for the initial proposal of 72 apartments and buildings of 8, 12 and 15 storeys. Among the reasons for its refusal was Council's assessment that the development did not respond to the preferred neighbourhood character and would lead to an inconsistent built form along Burwood Highway. An amended proposal of 35 new apartments and buildings to a maximum eight storeys was supported by Council and approved by VCAT.
- nine new townhouses and an office at 16 Floriston Road in Boronia. This development is within the area covered by the Boronia Structure Plan. An initial proposal was refused by Council, in part, because it did not provide for a commercial component. An amended plan in which one of the ten townhouses originally proposed was replaced by an office was supported by Council and approved by VCAT.
- nine new dwellings in a villa unit complex at 56 Kathryn Road in Knoxfield. The approximately 3,900 square metre lot is within a Bush Suburban area, where detached dwellings and dual occupancy are the preferred typologies. Among its reasons for refusing a permit was Council's assessment that the proposal did not comply with the preferred future character and design objectives of the Bush Suburban area. An amended proposal which provided greater protection to vegetation and altered the roofline of two dwellings was supported by Council and approved at VCAT.
- The largest development which was not supported by Council when it went to VCAT was:
 - 18 new dwellings (a mix of single and double storey) at 24 and 26 Taylors Lane in Rowville. This site is within a Knox Neighbourhood area, where detached dwellings, dual occupancy and (on large blocks only) villa units are the preferred dwelling types. The proposed dwellings are a mix of detached and semi-detached. Among the reasons this development was refused was Council's assessment that it was an overdevelopment likely to result in unreasonable impact on the neighbourhood and landscape character of the area. The proposal was amended following Council's refusal, largely to provide more open space and increase setbacks. VCAT approved the amended proposal (which was not supported by Council) with a number of conditions, none of which altered the number or size of the dwellings.
- There were five VCAT decisions in 2020 for applications that were initially approved by Council or given a Notice of Decision to issue a permit. This type of VCAT referral is often the result of an appeal by neighbouring residents. In all five cases VCAT affirmed the Council decision but required some variation to the original application. Variations related to, for example, fencing/screening, glazing, tree protection, and setbacks. None required alteration of the number or type of dwellings yielded.
- The rate at which Council refusals are upheld by VCAT saw a noticeable decline in 2019 and 2020, after five years of relatively little change. VCAT considers each case brought before it on its individual merits.
- One case was referred to VCAT but withdrawn by the applicant. This was a proposal to develop two blocks on Kathryn Road in Knoxfield (a Bush Suburban area) for seven dwellings, which was refused by Council. Among the reasons for the refusal was Council's assessment that the proposal did not provide a suitable design response for the locality. Ultimately, no permit was issued.

11. Future program development

The Housing Monitoring Report will continue to be published annually. The following potential future enhancements are under development.

11.1 Residential construction activity

One of the longstanding goals of the Knox Housing Monitoring Program has been to monitor new building construction in addition to new planning permit approvals. Planning permits can provide important information about the type, size, and location of future housing in Knox. Residential planning permits are valid for two years and can be extended to four. But the decision to build under a permit is made by the landowner and developer. Not all planning permits result in new housing. Looking at planning permit approvals suggests what might be built, not what has been, or necessarily will be, built.

The Victorian Government presented information about new constructions in the Housing Development Data (HDD) program that has helped to close that gap. The HDD is based on automated analysis of aerial photography to determine where construction and demolitions are happening across the Melbourne. So far, the HDD covers 2005 to 2016. The HDD program will continue to be monitored for its potential contribution to the Knox Housing Monitoring Program.

11.2 Neighbourhood character and urban design

Neighbourhood character is an important part of community identity in Knox. The *Knox Residential Design Guidelines* (updated in 2019), provide detailed guidance for the preferred design of residential development in the different areas described in the *Knox Housing Strategy 2015*. Factors such as significant natural features, the predominant form of existing housing, proximity to local shops, and access to larger shopping areas and facilities are all taken into account when determining preferred design within residential areas.

Community engagement for *Knox@50* in 2012, the *Knox Housing Strategy 2015*, and the *Knox Community and Council Plan 2017-2021* highlighted some concern that the city is at risk of losing aspects of its identity due to rapid changes in the look and feel of its neighbourhoods. The *Municipal Survey 2020* showed that the type and affordability of housing in Knox are important to residents but also that a low proportion of Knox residents are satisfied with this aspect of Knox. The survey did not, however, provide insight into what specific aspects of the type and affordability of housing are seen to be less satisfactory. The issues identified in the *Municipal Survey 2020* are being investigated through further community engagement related to the development of the next *Community and Council Plan*.

The quality of urban design and the look and feel of streets are difficult to quantify because not everyone has the same needs, tastes and sensibilities. Knox Council obtains professional urban design advice for some important planning applications, but even the advice of third-party experts is ultimately subjective.

One way to measure issues related to identity and change is to measure perceptions and preferences related to neighbourhood character and urban design. Community engagement activities related to specific issues, such as housing and development, could help address questions about how people view the changes happening across Knox and how well Council's housing policy is aligned with community identity and expectations.

11.1 Dashboard creation

The Strategy and Business Intelligence team is working with the Research and Mapping team to build an interactive data dashboard which will enable users to more easily explore the planning permit data presented in the Housing Monitoring Reports. This project also has the potential to reduce the time required to produce an annual Housing Monitoring Report.

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Attachment A – Dwelling type definitions

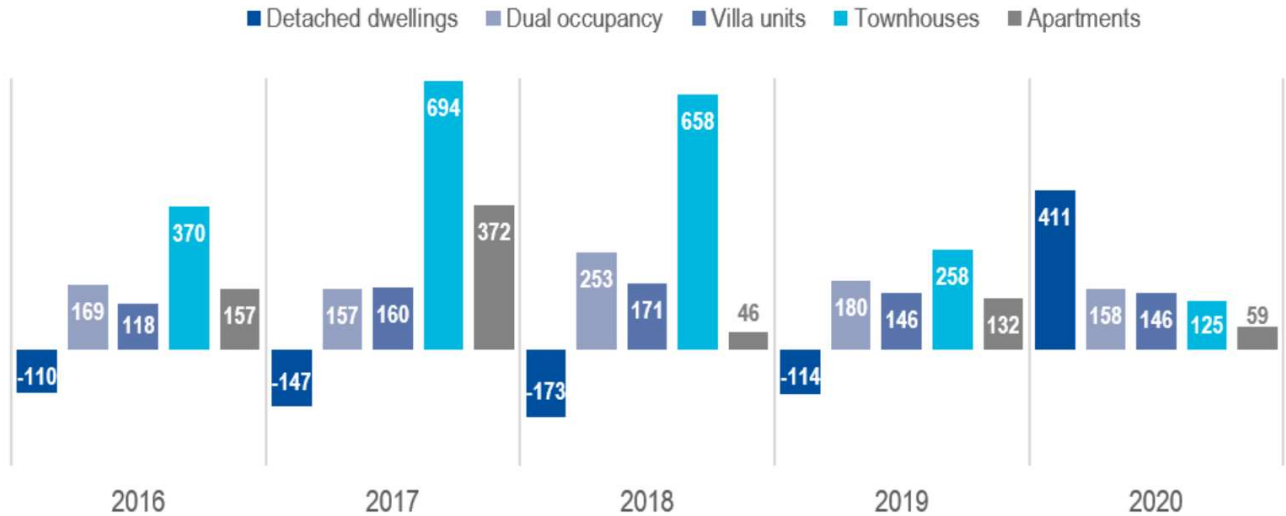
Housing types define in the *Knox Housing Strategy 2015*:

- Detached dwelling: one dwelling on a lot.
- Dual occupancy: two dwellings on a lot (can include retention of an existing dwelling).
- Villa units: three or more dwellings on a lot with no shared walls.
- Townhouses: three or more dwellings on a lot sharing a wall or roof.
- Apartments: development of three or more stories in a single mass or multi-unit dwelling, usually with a common entrance.

Further detail is available in the [Knox Residential Design Guidelines 2015 – revised 2019](#).

Attachment B – Net growth in dwellings by typology 2016 to 2020

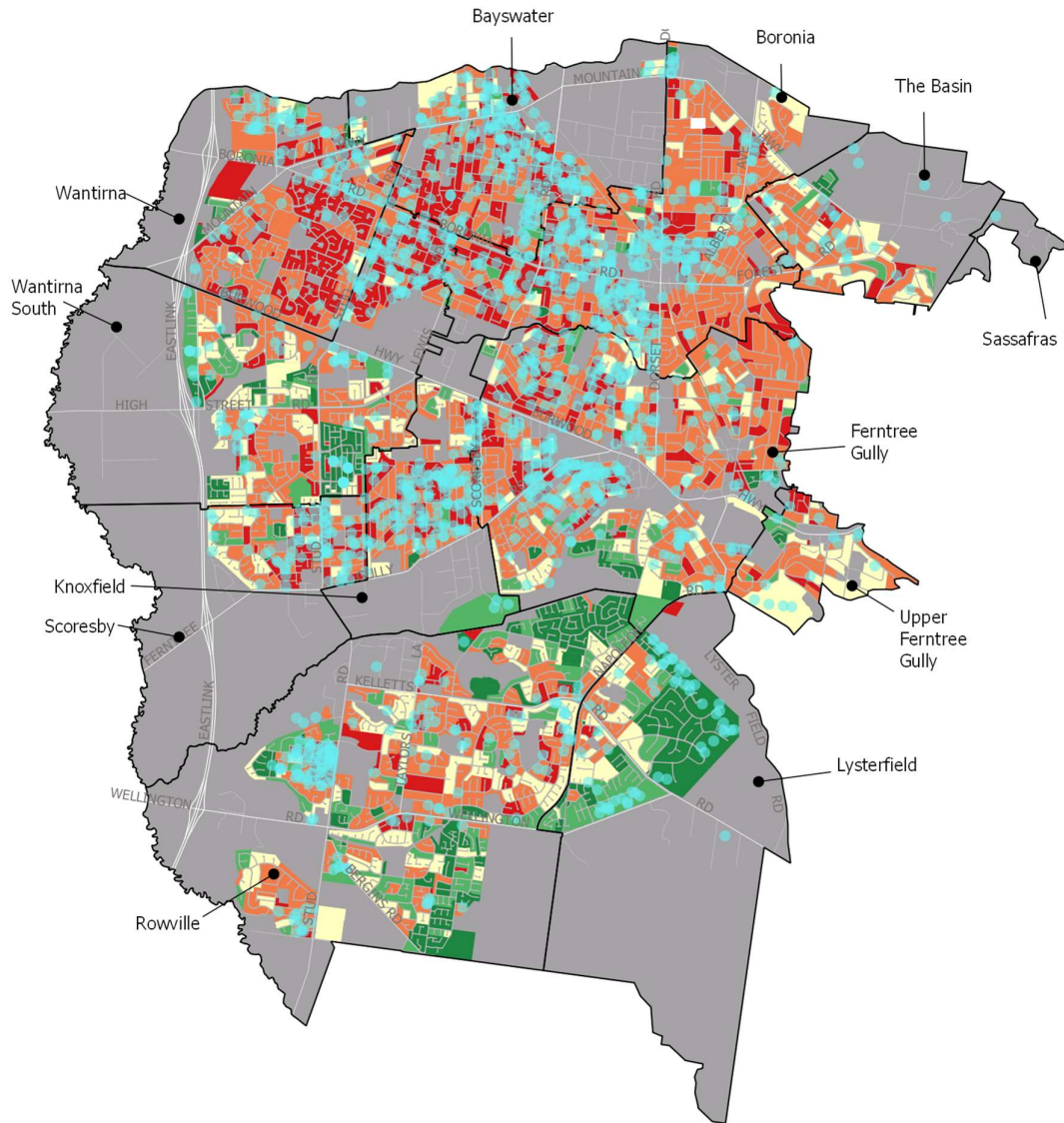
Figure 17. **Townhouses** have been the predominant dwelling typology in terms of net growth between 2016 and 2020.



Notes:

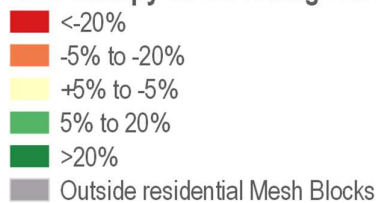
- Includes dwellings not in a Housing Strategy area (that is, outside the urban growth boundary and within Strategic Sites or Commercial Areas).
- For 2015 to 2018 calculations of net growth by typology are based on an assumption that all demolished dwellings were detached dwellings. Analysis of demolitions information for 2019 and 2020 indicates that this was true of 97% of demolitions.

Attachment C – Approved planning permits for new dwellings 2012 to 2017, and tree canopy change 2014 to 2018



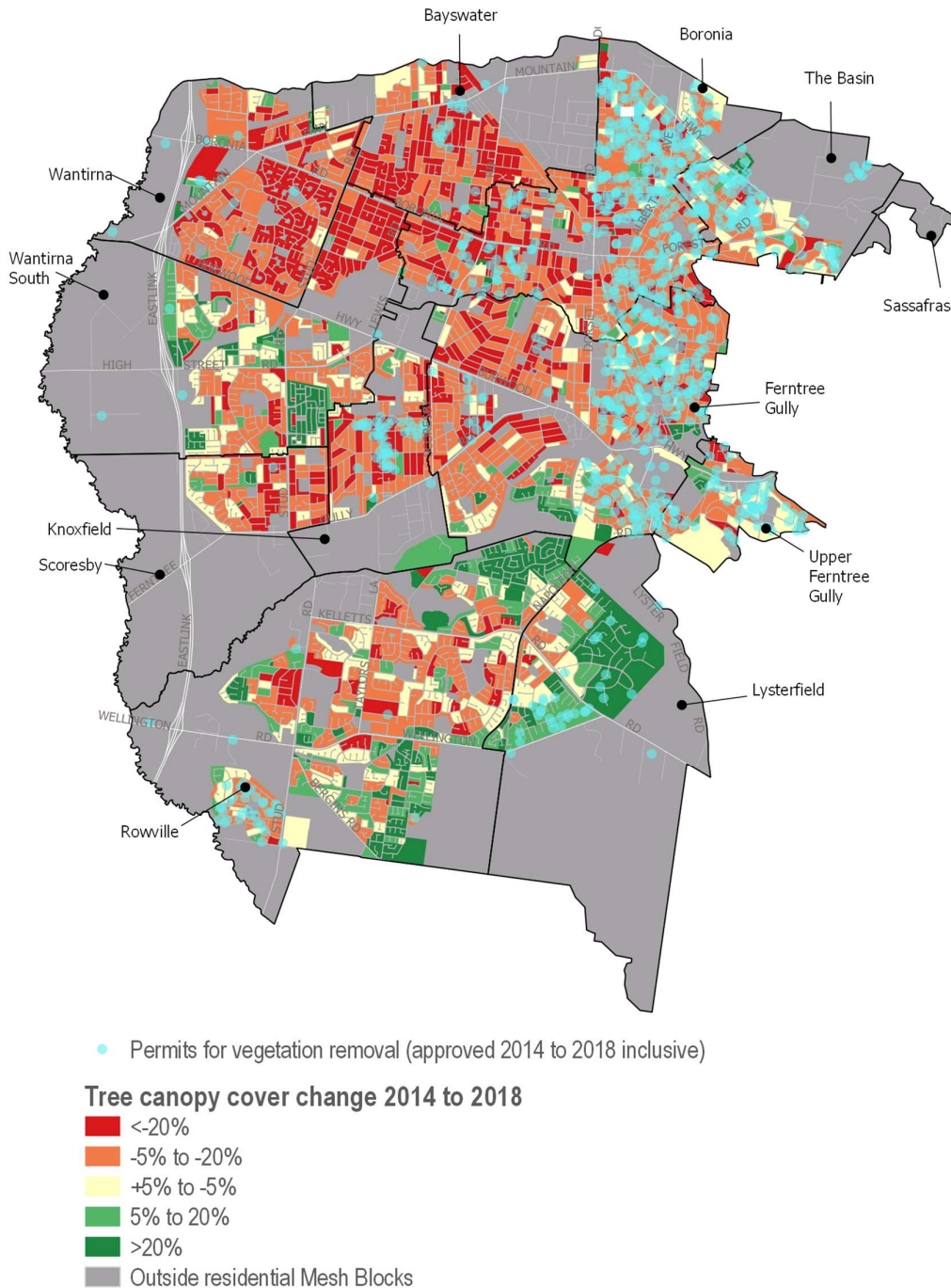
● Planning permits to yield at least 1 net new dwelling approved 2012 to 2017

Tree canopy cover change 2014 to 2018



Source: The “Change in Vegetation Cover in Metropolitan Melbourne between 2014 and 2018” data was produced by the Victorian Department of Environment, Land, Water and Planning and downloaded from Spatial Datamart in January 2021. Permit data was based on datasets used for Knox’s annual Housing Monitoring Reports 2012 through 2017.

Attachment D – Approved planning permits for vegetation removal¹⁶ 2014 to 2018 and tree canopy change 2014 to 2018



Source: The “Change in Vegetation Cover in Metropolitan Melbourne between 2014 and 2018” data was produced by the Victorian Department of Environment, Land, Water and Planning and downloaded from Spatial Datamart in January 2021. Permit data was extracted from DELWP’s Planning Permit Activity Reporting System (PPARS) in May 2020.

¹⁶ Vegetation removal permits are only required in specific planning areas, like those with a Vegetation Protection Overlay.